A Brief Overview of the Development on the Foreign Exchange Market in China: From 2018 to 2022

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Abstract: Transactions in the foreign exchange market determine the value of one currency relative to another, and in the present day of globalization, the foreign exchange market in each country has been the focus of scholars. However, few scholars seem to have combed through the development of Chinese foreign exchange market and the hot spots and directions of research in the last five years. Therefore, this study uses keyword co-occurrence and clustering analysis of 177 literature from Scopus and Web of Science were conducted using Citiespace software. The results show that the topics that scholars have focused on in the last five years include "exchange rate," "market," "China," etc. In addition, this study considers that the research directions of scholars are mainly divided into three categories.

Keywords: Foreign Exchange Market, China, Literature, Co-Occurrence, Clustering Analysis.

1. INTRODUCTION

The foreign exchange market, which operates on an Over-The-Counter (OTC) basis globally, determines what one currency is worth to another. These marketplaces let users to buy, sell, trade, and speculatively determine the relative exchange rates of various currency pairs. They are made up of banks, retail foreign currency dealers, commercial businesses, central banks, hedge funds, investment management firms, and investors.

With globalization, China's increasing position in the international trading system, China is gradually acquiring existing financial instruments commensurate with its size and market presence. Since China's reform and opening-up in 1978, the foreign exchange market has made great strides in many areas, including infrastructure, products, and services. According to Wang & Lin [1], the development of the foreign exchange market in China may be split into three time periods. the foreign exchange swap market, the foreign exchange open swap market and the national unified foreign exchange market. In 2005, when China launched its exchange rate

reform, more scholars focused on Chinese foreign exchange market and the RMB exchange rate, with some believing that this market has a specificity due to the intervention of the central bank [2]–[4].

Facing the development of Chinese foreign exchange market, in reviewing literature since 1979, Guijun & Schramm [5] considered the past Chinese foreign exchange regime as a gradual transformation process from centrally planned to market-led, and capital account liberalization would be the focus of future research. Meanwhile, Kwan [6] analyzed the foreign exchange market policy and news since 2005, and he claimed that through intervening in the foreign exchange market, the Chinese government has been preventing the RMB from rising to the USD. However, in the last five years, although the literature on Chinese foreign exchange market has increased year by year, scholars seem to lack a systematic review of the development of Chinese foreign exchange market in recent years.

Therefore, the purpose of this essay is to sort out the literature on the Chinese foreign exchange market from 2018 to 2022. This study collected 177 pieces of literature using Web of Science and Scopus databases. Using Citespace 6.1.R3 software to conduct a bibliometric analysis of the literature, this study attempts to summarise the direction of scholarly research on the Chinese foreign exchange market over the past five years and discusses the results.

The following are the study's remaining sections, in the next section, the data for this study is described, as well as the research methodology. The third section presents the bibliometric analysis results. The final section includes a conclusion and discussion

Research Elaborations
A.   Data Sources

The data sources for this study are with Scopus and Web of Science databases, this study was conducted by setting the option "Keywords, Topic, Title" to "Chinese foreign exchange market" and the search condition "Year" to "2018 to 2022" in both databases, and restricting the scope to "research articles", a total of 256 articles were obtained, including 116 items from the Scopus database and 140 items from the WOS database.

After importing the data into Citespace 6.1.R3 select the Remove Duplicate Literature operation to export valid data 177 literature. The literature and year of publication are reported in Fig 1 for this study.
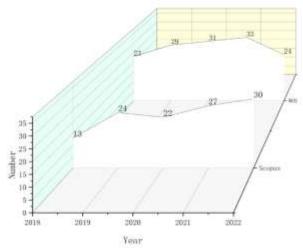
Fig 1 Annual trend of Related Literature Publication

2. RESEARCH METHODOLOGY

CiteSpace is a literature visualization tool that groups research accomplishments in a topic or field of study across time in accordance with a predetermined pattern, making them accessible for visual analysis [7]–[9]. Thus, this study refers to He et al. [10], and sets the basis of Citespace 6.1.R3 as in Table 1.

Table 1: Basic Parameter Settings

Settings	Values		Description
Time Slicing	From Jan 2018 to Nov 2022		Years of Slicing 1
Node Type	Based on the objective set for each analysis		
Links	Strength:	Cosine	
	Scope:	Within slices	
Sections Criteria	g-index		The selection uses a modified g-index in each slice g2 ≤ k∑i≤gci, k∈Z+ To include more or fewer nodes, increase or decrease the scale factor k=25
Pruning	Pathfinder, pruning sliced networks & pruning the merged network		

3. RESULTS

Keywords are a high-level overview subtab the topic of the research area of the paper, and high frequency keywords often represent hot issues in that research area. The link between the research content, research lineage and research hotspots under the research theme of "Chinese foreign exchange market", this study ran CiteSpace using the base settings in Table 1 and

setting the "node type" to "keyword". Through merging and calculation, numerous keywords appeared in the keyword co-occurrence knowledge graph were observed, as shown in Figure 2. The most frequent keyword was 'exchange rate', which appeared 31 times in 177 papers, and the top 20 keywords listed in this study are shown in Table 2.

Table 2: Keywords and Frequency

No.	Freq	Keyword	No.	Freq	Keyword
1	31	exchange rate	11	10	financial market
2	29	market	12	10	risk
3	17	China	13	10	firm
4	16	return	14	9	investment
5	14	stock market	15	9	foreign exchange
6	14	price	16	9	volatility
7	12	performance	17	9	corporate governance
8	12	volatility spillover	18	7	foreign exchange market
9	12	impact	19	7	foreign direct investment
10	10	model	20	6	dynamics

The analysis of the keyword co-occurrence results revealed that the top 13 keywords all appeared more than 10 times. This indicates that they are well discussed in the field of Chinese foreign exchange market and that they are the focus and hotspot of research in the field. "Exchange rate" and "market" are clearly surrounded by thick lines. Indicating that they appear together with high frequency and that most scholars are focusing on them. Thus, these keywords show a clear network structure.
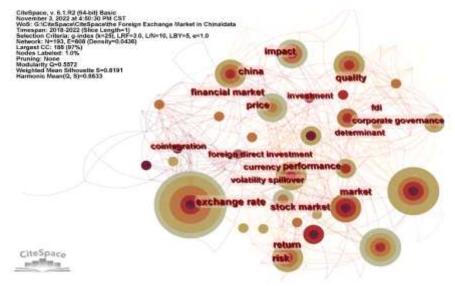

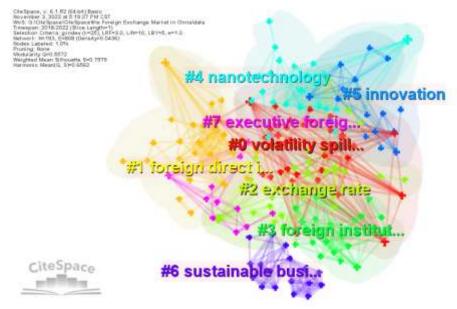Fig 2. Keyword Co-occurrence Knowledge Graph

Fig 3. Keyword Clustering Knowledge Graph

This study uses the Latent Semantic Indexing (LSI) Algorithm for cluster analysis based on keyword co-occurrence knowledge maps, which group similar research objects together and focus on the structural features between clusters. This reflects the research hotspots. After clustering the keywords in Fig 2, we obtained Fig 3, where the Modularity $Q = 0.5572 > 0.3000$, the Weighted Mean Silhouette $S = 0.7979 > 0.7$ and the Harmonic Mean $(Q, S) = 0.6562$ indicate that the clustering structure is significant and convincing, and this study filtered out the top 8 clusters, which are illustrated in Table 3.

Table 3. Co-occurrence clustering of literature Keywords Based on LSI Algorithm

Cluster ID	Size	Silhouette	Label (LSI)
#0	36	0.683	**volatility connectedness (76.27, 1.0E-4)**; market dependence (40.82, 1.0E-4); major financial market (40.82, 1.0E-4); China economy (40.82, 1.0E-4); 13hinese commodity market (37.64, 1.0E-4)
#1	29	0.856	**spillover effect (37.82, 1.0E-4)**; foreign direct investment inflow (37.82, 1.0E-4); banking industry (37.82, 1.0E-4); foreign direct investment (33.57, 1.0E-4); structural change (33.57, 1.0E-4)
#2	26	0.885	**sustainable financial resource (69.44, 1.0E-4)**; artificial intelligence UKF method (69.44, 1.0E-4); exchange rate (68.26, 1.0E-4); offshore RMB exchange (41.26, 1.0E-4); long-term volatility (41.26, 1.0E-4)
#3	25	0.835	**financial performance (68.32, 1.0E-4)**; shanghai stock exchange (68.32, 1.0E-4); corporate governance (68.32, 1.0E-4); Chinese firm (41.27, 1.0E-4); foreign institutional investor (35.76, 1.0E-4)

#4	24	0.802	**stock return (42.03, 1.0E-4)**; financial reporting quality (42.03, 1.0E-4); Chinese a-b twin share (42.03, 1.0E-4); patent analysis perspective (37.72, 1.0E-4); comparing nanotechnology landscape (37.72, 1.0E-4)
#5	18	0.834	**Chinese stock market sector (32.6, 1.0E-4)**; information flow network (32.6, 1.0E-4); market integration (32.23, 1.0E-4); renminbi onshore (32.23, 1.0E-4); dynamic relation (32.23, 1.0E-4)
#6	17	0.929	**innovation performance (32.43, 1.0E-4)**; mediating effect (32.43, 1.0E-4); business environment distance (32.43, 1.0E-4); d internationalization (32.43, 1.0E-4); Chinese companies (16.02, 1.0E-4)
#7	13	0.818	**internationalization motives parenting style (33.47, 1.0E-4)**; Indian mne subsidiaries (33.47, 1.0E-4); conceptual framework (33.47, 1.0E-4); human resource management practice (33.47, 1.0E-4); China-Asian free trade area (26.68, 1.0E-4)

Notes: the bolded keywords are the names of the clustering groups.

4. CONCLUSIONS

To study the development of Chinese foreign exchange market, and the research hotspots and research directions in the last five years. This study conducts a bibliometric analysis of 177 documents in Scopus database and WOS database using extant literature and Citespace 6.1.R3. Through keyword co-occurrence analysis and cluster analysis, this study has obtained the following conclusions:

1) In the period 2018 to 2022, the topics that have been widely followed by scholars include "exchange rate", "market", "China" etc.

2) The research direction of the literature in the past five years has mainly focused on three directions: Chinese foreign exchange market and the international market; Chinese foreign exchange market and domestic financial market; and the innovative research of Chinese foreign exchange market.

This study can provide scholars with directional references for future research; however, due to the limitations of the literature number, future studies may need to further expand the literature to verify the validity of the findings of this study.

For future research directions, this study argues that scholars may do more to discuss the Chinese foreign exchange market as a normal market, such as discussions about market efficiency [11]–[13], and the impact of certain events on the market [14]–[16]. The research on the nature and characteristics of the market will be reduced accordingly, because the third stage of the reform of the Chinese foreign exchange market has been associated with a gradual shift from state control.

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